

Central Intelligence Agency

Washington, D.C. 20505

DIRECTORATE OF INTELLIGENCE

16 March 1983

MEMORANDUM FOR: Dr. Norman A. Bailey
Senior Director, National Security Planning
National Security Council

FROM : [REDACTED]
Acting Chief
Strategic Resources Division

SUBJECT : Economics of a Dutch-Norwegian Gas Swap [REDACTED]

1. Attached is our estimate of the potential benefits of increased Dutch gas exports to Western Europe in conjunction with a swap arrangement for Norwegian gas in the 1990s. This assessment is predicated on industry forecasts of future conditions in the European gas market and the results are strongly influenced by assumptions regarding price and the timing and level of exports. [REDACTED]

2. If you have any questions, please contact me [REDACTED]

Attachment:

Economics of a Dutch-Norwegian Gas Swap
GI M 83-10059, March 83 [REDACTED]

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SUBJECT: Economics of a Dutch-Norwegian Gas Swap

Distribution:

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Economics of a Dutch-Norwegian Gas SwapSummary

A Dutch-Norwegian gas swap arrangement could obviate the need for a second installment of Soviet gas sales to Western Europe in the 1990s and provide greater security of supply for the Europeans. The economics of a gas swap deal for the Netherlands, however, are unfavorable. Industry forecasts indicate that market conditions are likely to preclude any increase in Dutch exports until the late 1980s and if current assumptions of future energy price trends prove correct, the Dutch could lose about \$200 million from such an arrangement. Consequently, we believe the Hague would insist on significant financial incentives before agreeing to any swap arrangement.

[redacted]

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This memorandum was prepared by [redacted]
[redacted] Energy Issues Branch, Office of Global Issues.
The information contained herein is updated to 16 March 1983.
Comments may be directed to [redacted] Chief, Energy Issues
Branch, [redacted]

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Economics of a Dutch-Norwegian Gas SwapBackground

Economic difficulties and soft energy markets are forcing West European gas producers to re-evaluate their gas policies. In the Netherlands, budgetary problems and a sluggish economy have forced the government to re-open discussions on a range of export deals including the possibility of a swap arrangement with the Norwegians. Under a plan being discussed, the Netherlands and Norway would pool gas exports, increasing Dutch exports in the near term and accelerating development of Norway's North Sea reserves for delivery to Western Europe and the Netherlands in the mid to late 1990s. The deal would be attractive because the two countries might be able to supply enough gas to obviate the need for large additional purchases of Soviet gas in the 1990s and also enable the French and West Germans to minimize purchases of Soviet gas in this decade under recently signed contracts. In addition, developing an additional Norwegian pipeline system would provide greater security of supply for Western Europe. []

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Economics of a Gas Swap

Additional Dutch gas exports of up to 65 billion cubic meters (bcm) to Western Europe over the next 10-15 years, replaced by an equal volume of Dutch imports of Norwegian gas in the late 1990s, appears uneconomic for the Netherlands. Given projected market conditions, increased Dutch gas exports could only begin in the late 1980s at the earliest. The present discounted value of future cash flows from increased exports is unlikely to offset Dutch outlays for Norwegian gas in the 1990s. On the basis of industry estimates, Norwegian gas probably will be over 20 percent more expensive than Dutch domestic supplies. Consequently, we estimate such a gas swap arrangement could result in a loss of about \$200 million for the Netherlands. For such an arrangement to be even marginally attractive to the Dutch, they would require a 6 percent real rate of return on their invested revenues from increased gas exports. This enables the potential profit to approximate the present discounted value of the gas if left in the ground and real gas prices increased as most forecasts expect. []

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Assumptions

Assumptions concerning gas prices, the discount rate, and the annual volumes of Dutch exports are crucial in assessing the economics of a Dutch-Norwegian gas swap. Under most likely scenarios, however, the Hague stands to lose. []

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Prices. Industry forecasts in early 1983 now anticipate declining real oil prices to 1985, with prices remaining flat through 1990 and rising about 1.5-3.0 percent per year between 1990 and the year 2000. Gas prices are likely to follow given the increasing linkage between oil and gas prices in European contracts. As a result, we assume real gas prices will decline 1 percent per year to 1985, remain flat through 1990, increase 1 percent per year between 1990-95, and rise 2 percent per annum from 1995 through the year 2000.

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As for the cost of Norwegian gas delivered to the Netherlands, we believe it will approximate \$.18 per cubic meter (\$5.25 per million BTU in 1982 dollars) in the mid-1990s.

production costs alone for the Troll gasfield project would be \$.12-.15 per cubic meter. We have further assumed a 10 percent real return on the resource and transportation costs of \$.02-.03 per cubic meter. Because Norwegian gas contains a higher BTU content than does Dutch gas, adjustments in the Dutch gas grid or gas blending will be required; we have thus increased the delivered price of Norwegian gas by 4 percent to cover these additional costs as estimated by industry sources.

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Discount Rate. The real return on investments has historically been around 3 to 4 percent. Consequently, we assume a 4 percent real discount rate in our base case. A higher (lower) discount rate would decrease (increase) the present value of future cash flows, primarily affecting Dutch outlays for Norwegian gas in the latter 1990s. Assuming a 5 percent discount rate, the Dutch could gain \$240 million from the gas swap. Under a 3 percent real discount rate, however, the Dutch would lose \$760 million.

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Timing and Rate of Exports. Industry forecasts indicate that market conditions are likely to preclude any increase in Dutch exports until the late 1980s. The earlier the Dutch can begin exports, the greater the potential gain to be realized. Lower exports in the early 1990s--which is probably more likely given current gas market projections--boost the potential losses for the Netherlands. Conversely, higher exports in the early 1990s compensated for by lower exports later cut the Dutch loss by about \$100 million.

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Other Factors. The effect of higher Dutch gas prices domestically--resulting from imports of more costly Norwegian gas--has not been assessed. For example, in industry, gas is expected to provide about half of total energy requirements in the latter half of 1990s and higher gas prices could erode the competitiveness of Dutch industrial products. On the other hand, added gas sales could improve the country's trade balance and perhaps reduce government borrowing requirements in the late 1980s and early 1990s.

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Netherlands: Economics of a Gas Swap with Norway

(US \$ Million)

Present Value of Future Cash Flows
(Real Discount Rate of 4 Percent)

<u>Year</u>	<u>Case A</u>	<u>Case B</u>	<u>Case C</u>	<u>Case D</u>
1988	\$693	\$693	\$693	\$693
1989	666	666	666	666
1990	641	641	641	641
1991	1,244	1,257	1,866	1,885
1992	1,208	1,232	1,812	1,848
1993	1,174	1,208	1,174	1,208
1994	1,140	1,185	570	593
1995	1,107	1,163	553	581
1996	-1,300	-1,300	-1,300	-1,300
1997	-1,275	-1,275	-1,275	-1,275
1998	-1,876	-1,876	-1,876	-1,876
1999	-1,839	-1,839	-1,839	-1,839
2000	-1,804	-1,804	-1,804	-1,804
Net	<u>\$-221</u>	<u>\$-49</u>	<u>\$-119</u>	<u>\$21</u>

Case A: Base case. Real gas prices decline 1 percent per year to 1985, remain flat through 1990, increase 1 percent per year between 1990-95 and rise 2 percent per annum from 1995 through 2000. Dutch gas exports are 5 bcm per year between 1988 and 1990 and are 10 bcm per year from 1991 through 1995.

Case B: Strong gas market in the 1990s: real gas prices increase 2 percent per year between 1990 and the year 2000.

Case C: Higher Dutch gas exports during the early 1990s: 1991, 15 bcm; 1992, 15 bcm; 1993, 10 bcm; 1994, 5 bcm; 1995, 5 bcm.

Case D: Assumptions of both Case B and Case C.

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